

HSNO. 636863

REPORT NUMBER 110(IND)-GTL-03-035

**SAFETY COMPLIANCE TESTING FOR
FMVSS NO. 110(INDICANT)
TIRE SELECTION AND RIMS**

**BAYERISCHE MOTOREN WERKE AG
2003 BMW MINI COOPER PASSENGER CAR
NHTSA NO. C30506**

**GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443**



SEPTEMBER 25, 2003

FINAL REPORT

PREPARED FOR

**U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SAFETY ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
400 SEVENTH STREET, SW
ROOM 6111 (NVS-220)
WASHINGTON, D.C. 20590**

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9. Performing Organization Name and Address General Testing Laboratories, Inc. 1623 Leedstown Road Colonial Beach, Va 22443		8. Performing Organ. Rep# GTL-DOT-03-110(INDICANT)-035	
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16. Abstract This test was conducted on the subject, 2003 BMW Mini Cooper passenger car in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-110-02 (partial), to gather data relating to the normal load requirements specified in FMVSS 110. NHTSA's Office of Safety Performance Standards requested this data to support the agency's TREAD tire rulemaking efforts.		14. Sponsoring Agency Code NVS-120 & NVS 220	
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SECTION 1

INTRODUCTION

1.0 PURPOSE OF INDICANT TEST

A 2003 BMW Mini Cooper passenger car was subjected to a FMVSS No. 110 (Indicant) test intended to gather data relating to the normal load requirements specified in FMVSS 110. NHTSA's Office of Safety Performance Standards requested this data to support the agency's TREAD tire rulemaking efforts.

1.1 TEST VEHICLE

The test vehicle was a 2003 BMW Mini Cooper. Nomenclature applicable to the test vehicle are:

- A. Vehicle Identification Number: WMWRC33493TC41282
- B. NHTSA No.: C30506
- C. Manufacturer: BAYERISCHE MOTOREN WERKE AG
- D. Manufacture Date: 11/02

1.2 TEST DATE

The test vehicle was subjected to testing on May 23, 2003.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 TEST PROCEDURE

The vehicle was inspected, photographed and filled with fuel. It was then weighed to establish total curb weight and the weights of all wheels were measured and recorded. The vehicle was then ballasted to its normal load condition (refer to appendix) and the weights of all wheels were measured and recorded. Tire information labeling data and tire sidewall data were recorded.

This indicant test did not include any other requirements in FMVSS 110.

2.1 SUMMARY OF RESULTS

Test results are provided in Section 3.

**SECTION 3
TEST DATA**

DATA SHEET 1
SUMMARY

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BMW MINI COOPER PASSENGER CAR
VEHICLE NHTSA NO.: C30506 ; VIN: WMWRC33493TC41282
LABORATORY: GENERAL TESTING LABORATORIES
TEST DATE: 05/23/03

<u>REQUIREMENT</u>	<u>YES/NO</u>
The vehicle is equipped with tires that meet the requirements of FMVSS 109 or FMVSS 119.	<u>YES</u>
The vehicle normal load on the tire is not greater than the high speed performance test load specified in FMVSS 109 paragraph S5.5 or FMVSS 119 paragraph S7.4.	<u>YES</u>
For passenger cars, the tire information placard is permanently affixed to the glove compartment door or equally accessible location; and displays the required information (FMVSS 110, S4.3).	<u>YES</u>
For vehicles other than passenger cars, a combined certification/ tire information label or separate tire information label is permanently affixed to either the hinge pillar, door-latch post or to the inward-facing surface of the door next to the driver's seating position (FMVSS 120, S5.3).	<u>N/A</u>

REMARKS:

RECORDED BY: M. A. [Signature]
APPROVED BY: A. [Signature]

DATE: 05/23/03

DATA SHEET 2
TEST VEHICLE INFORMATION/RECEIVING INSPECTION

LABORATORY: GENERAL TESTING LABORATORIES DATE: 05/23/03

VEHICLE MODEL YEAR/MAKE/MODEL/BODY STYLE: 2003 BMW MINI COOPER

MANUFACTURE DATE: 11/02 NHTSA NO.: C30506 BODY COLOR: INDIGO BLUE

VIN: WMWRC33493TC41282 VEHICLE TYPE: PASSENGER CAR

GVWR 1515 kg (3340 lbs) GAWR(Fr) 870 kg (1918 lbs) GAWR(Rr) 730 kg (1609 lbs)

BELTED SEATING POSITIONS: FRONT 2 MID N/A REAR 2 OTHER N/A

ENGINE DATA: 4 Cylinders 1.6 Liters _____ Cubic Inches

TRANSMISSION DATA: _____ Automatic X Manual 5 No. of Speeds

FINAL DRIVE DATA: _____ Rear Drive X Front Drive _____ 4 Wheel Drive

INSTALLED TIRE DATA: Size - P195/55R16 Mfr. - GOODYEAR

CHECK APPROPRIATE BOXES FOR VEHICLE EQUIPMENT/MAKE SURE ALL OPTIONS ON WINDOW STICKER ARE LISTED:

<input checked="" type="checkbox"/>	Air Conditioning		Traction Control	<input checked="" type="checkbox"/>	Clock
<input checked="" type="checkbox"/>	Tinted Glass		All Wheel Drive		Roof Rack
<input checked="" type="checkbox"/>	Power Steering		Cruise Control	<input checked="" type="checkbox"/>	Console
<input checked="" type="checkbox"/>	Power Windows	<input checked="" type="checkbox"/>	Rear Window Defroster	<input checked="" type="checkbox"/>	Driver Air Bag
<input checked="" type="checkbox"/>	Power Door Locks		Sun Roof or T-Top	<input checked="" type="checkbox"/>	Passenger Air Bag
	Power Seat(s)		Tachometer	<input checked="" type="checkbox"/>	Front Disc Brakes
<input checked="" type="checkbox"/>	Power Brakes	<input checked="" type="checkbox"/>	Tilt Steering Wheel	<input checked="" type="checkbox"/>	Rear Disc Brakes
<input checked="" type="checkbox"/>	Antilock Brake System	<input checked="" type="checkbox"/>	AM/FM/CD		Other -

ARE ALL OPTIONS LISTED ON "WINDOW STICKER" PRESENT ON THE TEST VEHICLE:
(YES/NO) Yes

REMARKS:

RECORDED BY: M. P. [Signature]

DATE: 05/23/03

APPROVED BY: D. [Signature]

DATA SHEET 3
CURB WEIGHT WITH OPTIONS AND NORMAL LOAD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BMW MINI COOPER PASSENGER CAR
 VEHICLE NHTSA NO.: C30506 ; VIN: WMWRC33493TC41282
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/23/03

Full Fluid Levels:

Fuel Full ; Coolant Full ; Other Fluids Full

Tire Pressure: LF 210 KPA (30 psi) LR 210 KPA (30 psi)
 RF 210 KPA (30 psi) RR 210 KPA (30 psi)

A. MEASURED CURB WEIGHT WITH INSTALLED OPTIONS AND ACCESSORIES

LF <u>348 KG (768 LB)</u>	LR <u>230 KG (508 LB)</u>
RF <u>357 KG (786 LB)</u>	RR <u>230 KG (507 LB)</u>
Front Axle <u>705 KG (1554 LB)</u>	Rear Axle <u>460 KG (1015 LB)</u>
Total Vehicle <u>1165 KG (2569 LB)</u>	

B. MEASURED VEHICLE WEIGHT IN NORMAL LOAD CONDITION

- (1) Seating Capacity (from Tire Information Placard) = 4
 Seating Capacity (# of belted seating positions) = 4
- (2) Normal Load # of Occupants from Appendix
 Occupant Distribution: Front Seat- 2 Second Seat- 0
 Third Seat - N/A Fourth Seat- N/A
- (3) Total Normal Occupant Load 136 KG (300 LB)
 (# of occupants x 68 KG per occupant)
- (4) Measured Normal Load on Each Wheel and Axles (Sum)
- | | |
|--|---------------------------------|
| LF <u>382 KG (843 LB)</u> | LR <u>284 KG (583 LB)</u> |
| RF <u>391 KG (863 LB)</u> | RR <u>262 KG (578 LB)</u> |
| Frnt Axle <u>774 KG (1706 LB)</u> | Rr Axle <u>527 KG (1161 LB)</u> |
| Total Vehicle <u>1300 KG (2867 LB)</u> | |

DATA SHEET 3 - CONTINUED

- (5) Calculated Vehicle Normal Load on the Tire
 Front Tires (measured front axle normal load/2) = 387 KG (853 LB)
 Rear Tires (measured front axle normal load/2) = 263 KG (580 LB)
- (6) High Speed Test Load from (X) FMVSS 109 (S5.5), or () FMVSS 119 (S7.4)

	Front	Rear
(a) Installed Tire Size	<u>P195/55R16</u>	<u>P195/55R16</u>
Max. Load Rating on Sidewall	<u>545 KG(1201 LBS)</u>	<u>545 KG(1201 LBS)</u>
Reduced Sidewall Load Rating (if applicable)*	<u>N/A</u>	<u>N/A</u>
High Speed Test Load (88% of sidewall max. load rating)	<u>479 KG(1057 LBS)</u>	<u>479 KG(1057 LBS)</u>
(b) Optional Tire Size(s)	<u>Refer to Data Sheet 4 Remarks</u>	<u>Refer to Data Sheet 4 Remarks</u>

* If a passenger car tire is installed on a multipurpose passenger vehicle (MPV), truck or bus, the tire's load rating shall be reduced by dividing by 1.10.

REMARKS: The Vehicle Normal Load on the Tire is not greater than the High Speed Test Load

RECORDED BY: *M. R. [Signature]*
 APPROVED BY: *A. M. [Signature]*

DATE: 05/23/03

DATA SHEET 4
TIRE INFORMATION LABEL OR PLACARD

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BMW MINI COOPER PASSENGER CAR
 VEHICLE NHTSA NO.: C30506 ; VIN: WMWRC33493TC41282
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/23/03

A. Vehicle Type from Certification Label: Passenger Car

B. Identify Vehicle Labeling:

Vehicle has a combined Certification Tire Information Label Yes No
 Is Label Permanently Affixed: Yes No
 Label Location: _____
 Description of Label: _____

Vehicle has a separate Tire Information Label or Placard Yes No
 Is Label Permanently Affixed: Yes No
 Label Location: _____ Driver's Side Lower "B" Pillar
 Description of Label: _____ Black/White Sticker

C. Enter Information from Combined or Separate Tire Information Label/Placard

Vehicle Capacity Weight - 370 KG (816 LBS)

Designated Seating Capacity (DSC) - 4
 Expressed In—

(1) Total No. of Occupants Yes No

(2) Terms of Occupants for Each Seat Location Yes No

Manufacturer's Recommended Tire Size and Cold Tire Inflation Pressure For Maximum Load Vehicle Weight:

P195/55R16 87H (See Remarks) FRONT - 240 kPa (35 psi)
 REAR - 240 kPa (35 psi)

Manufacturer's Recommended Tire Size and Cold Tire Inflation Pressure For Other Load Conditions: For two occupants the P195/55R16 tire size should be inflated to 210kPa (30 psi) for both the front and rear tires.

REMARKS: There are nine other Manufacturer's recommended size designations including load indexes and speed symbols (Refer to Figure 5.3).

RECORDED BY: *M. A. [Signature]*

DATE: 05/23/03

APPROVED BY: *D. Messick*

DATA SHEET 5
VEHICLE TIRE DATA

VEHICLE MAKE/MODEL/BODY STYLE: 2003 BMW MINI COOPER PASSENGER CAR
 VEHICLE NHTSA NO.: C30506 ; VIN: WMWRC33493TC41282
 LABORATORY: GENERAL TESTING LABORATORIES
 TEST DATE: 05/23/03

All tires on the vehicle are the same size: (Yes/No) Yes

INFORMATION FROM TIRE SIDEWALL:

Right Front Tire

Tire Size Designation	<u>P195/55R16</u>
Tire Load Index/Speed Symbol	<u>87H</u>
Maximum Inflation Pressure	<u>350 kPa (51 psi)</u>
Maximum Load Rating	<u>545 KG (1201 LBS.)</u>
Mfr. Name or Brand & Code	<u>GOODYEAR EAGLE</u>
Tube or Tubeless	<u>TUBELESS</u>
Treadwear/Traction/Temp. Grades	<u>240/A/A</u>
Sidewall (Plies & Composition)	<u>1 PLY RAYON</u>
Tread (Plies & Composition)	<u>1 PLY RAYON</u> <u>2 PLY STEEL</u> <u>2 PLY NYLON</u>
Serial Number: Right Front -	<u>DOT NEWO 2JY2 3902</u>

Tire has "DOT" markings: (X) YES () NO () UNDETERMINED

REMARKS:

RECORDED BY: 

DATE: 05/23/03

APPROVED BY: 

SECTION 4
INSTRUMENTATION AND EQUIPMENT LIST

TABLE 1 - INSTRUMENTATION & EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	MODEL/ SERIAL NO.	CAL. DATE	NEXT CAL. DATE
PAD SCALES	#1 199744LF	199744LF	06/02	06/20/03
	#2 199744RF	199744RF	06/02	06/20/03
	#3 199744LR	199744LR	06/02	06/20/03
	#4 199744RR	19974RR	06/02	06/20/03
PRESSURE GAGE	WESKLER	0-100	11/02	05/04
SURFACE LEVEL	GTL	N/A	BEFORE USE	BEFORE USE

SECTION 5
PHOTOGRAPHS

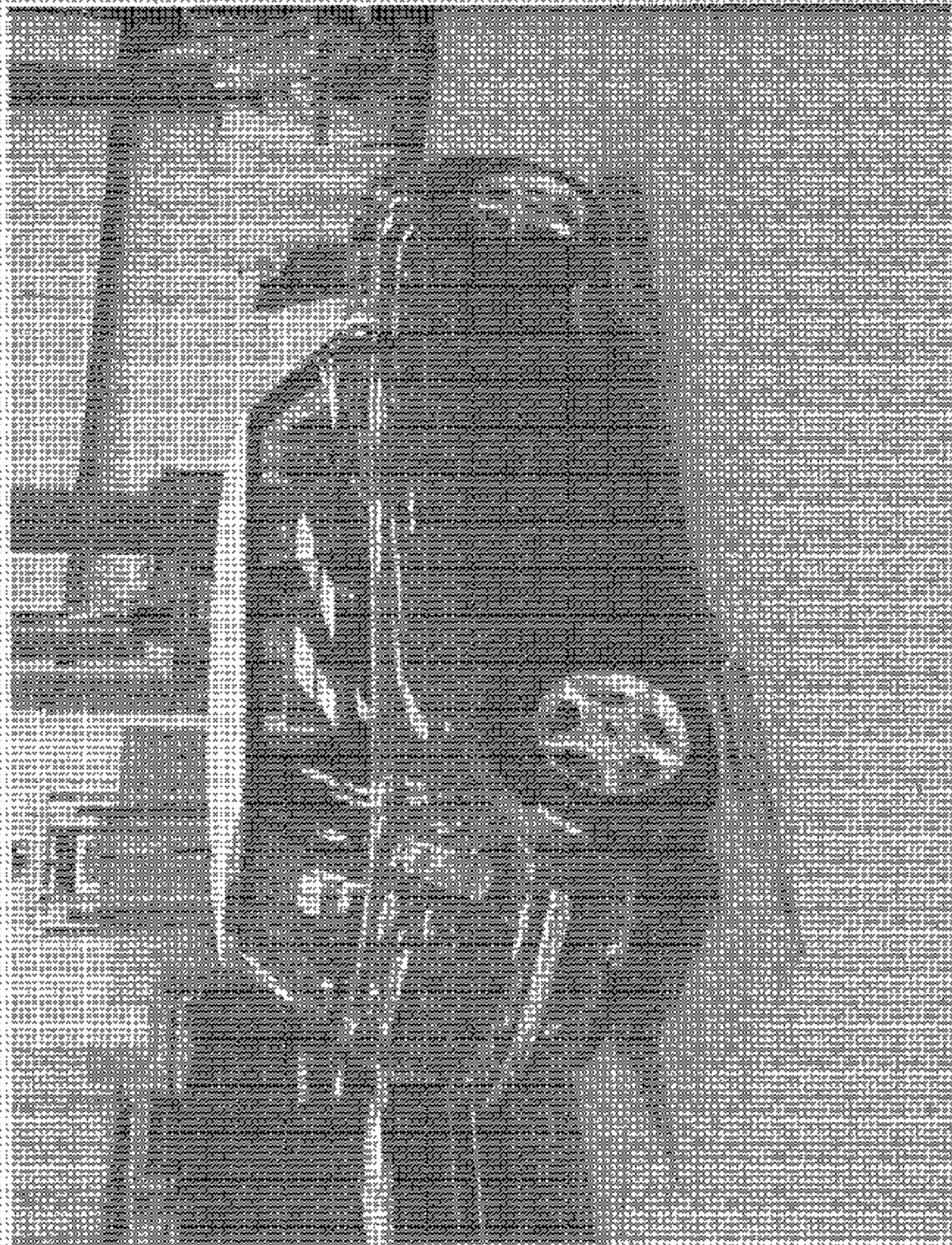
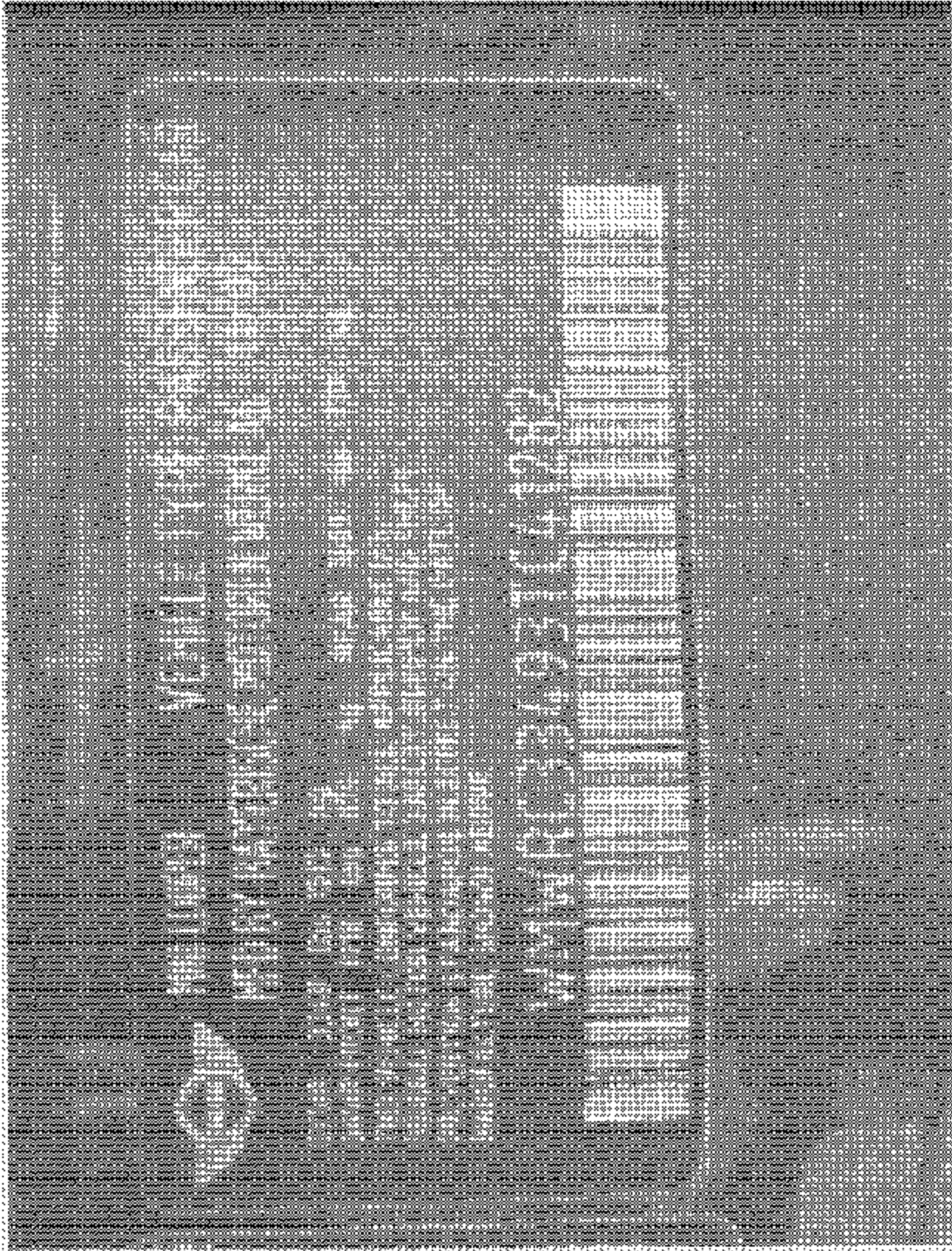


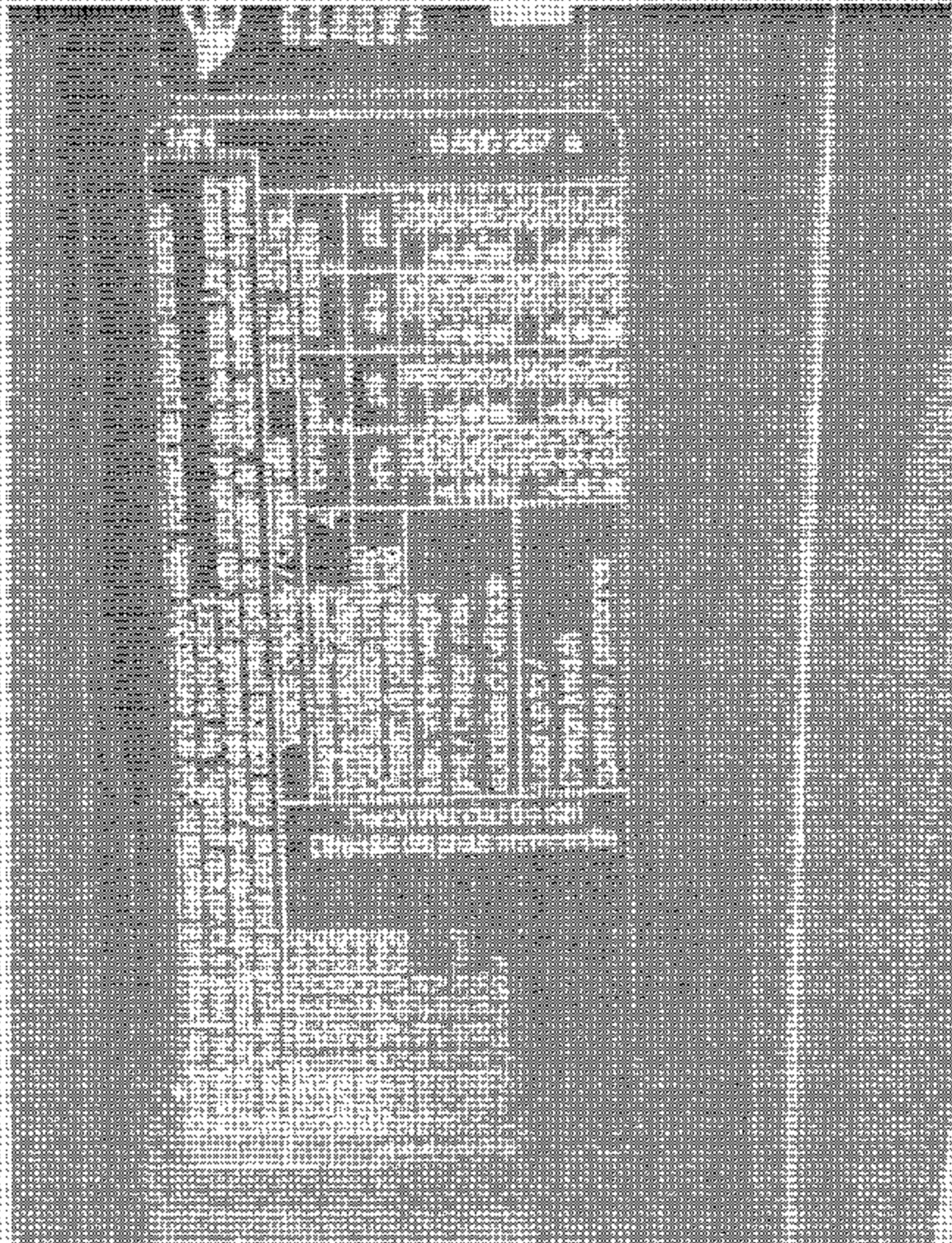
FIGURE 5 -
REARWARD VIEW OF SUBJECT

PHOTOGRAPH BY
NATIONAL GUARD
INVESTIGATIVE



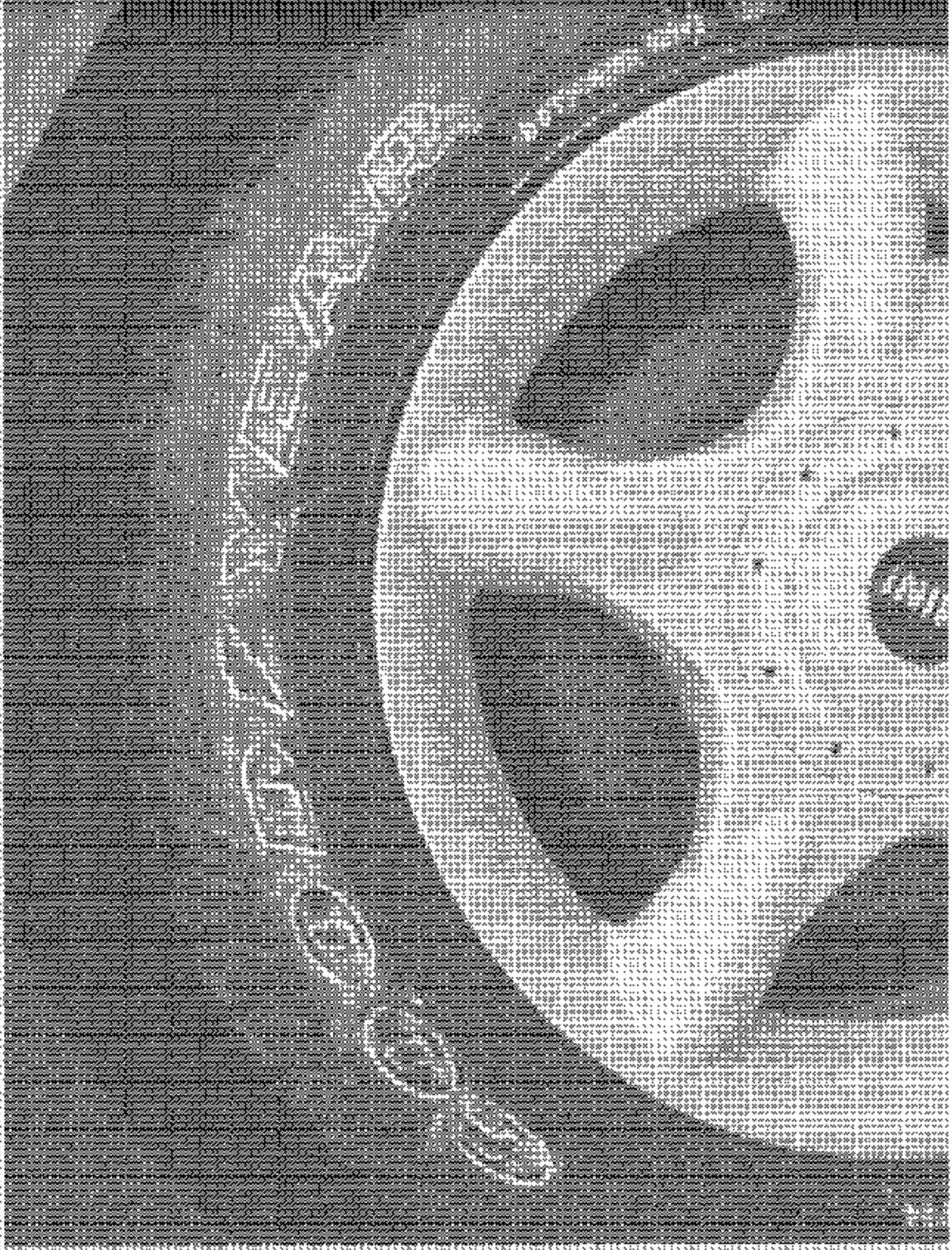
EUROPEAN UNION
AUTOSVEICOLI A TRE RUOTE
AUTOSVEICOLI A QUATTRO RUOTE
AUTOSVEICOLI A CINQUE RUOTE
AUTOSVEICOLI A SEI RUOTE
AUTOSVEICOLI A OTTO RUOTE
AUTOSVEICOLI A DIECI RUOTE
AUTOSVEICOLI A UNDICI RUOTE
AUTOSVEICOLI A DODICI RUOTE
AUTOSVEICOLI A TREDICI RUOTE
AUTOSVEICOLI A QUATTORDICI RUOTE
AUTOSVEICOLI A QUINDICI RUOTE
AUTOSVEICOLI A SEDICI RUOTE

FIGURE 50
VEHICLES CERTIFICATION LABEL



2003 BUICK GARDNER
NHTSA NO. 330906
TMS NO. 110 (MICHIGAN)

FIGURE 32
VEHICLES TIRE INFORMATION LABEL



ENUS8M0V3N1H-EDRPEX
NHTSA INC. C00536
EIVSS NO. 110 INDICANT

FIGURE 5A
THE SHOWING BAND

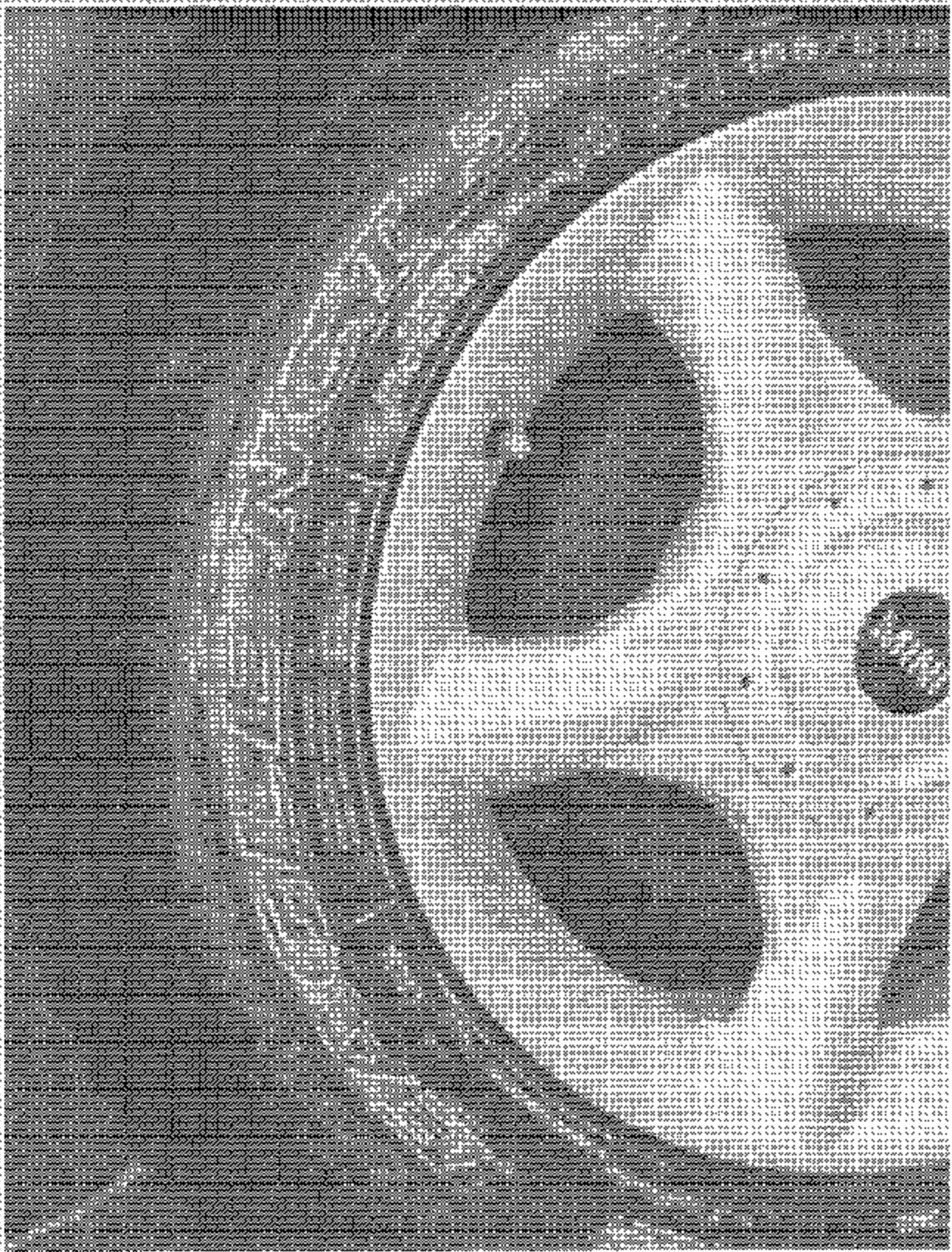
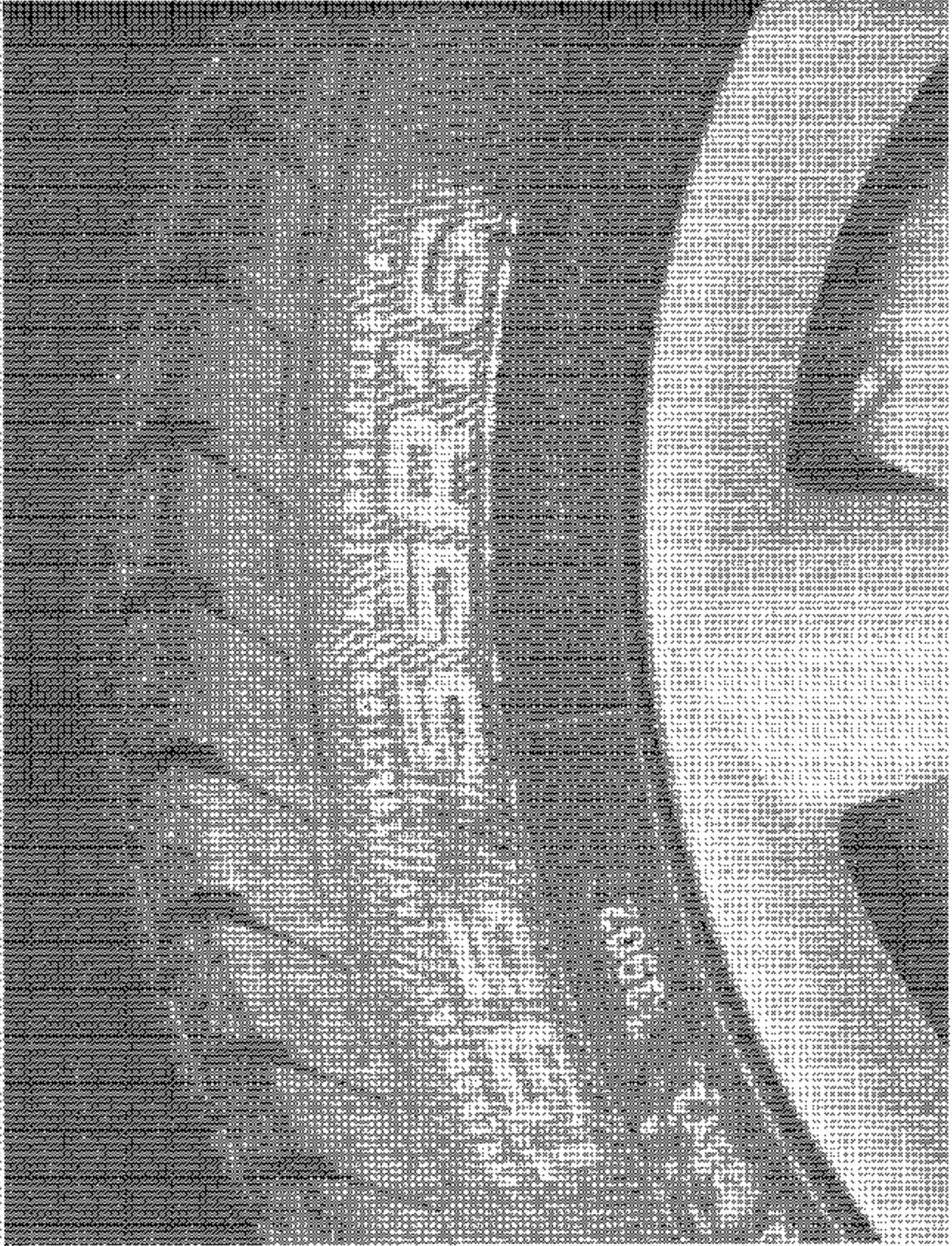


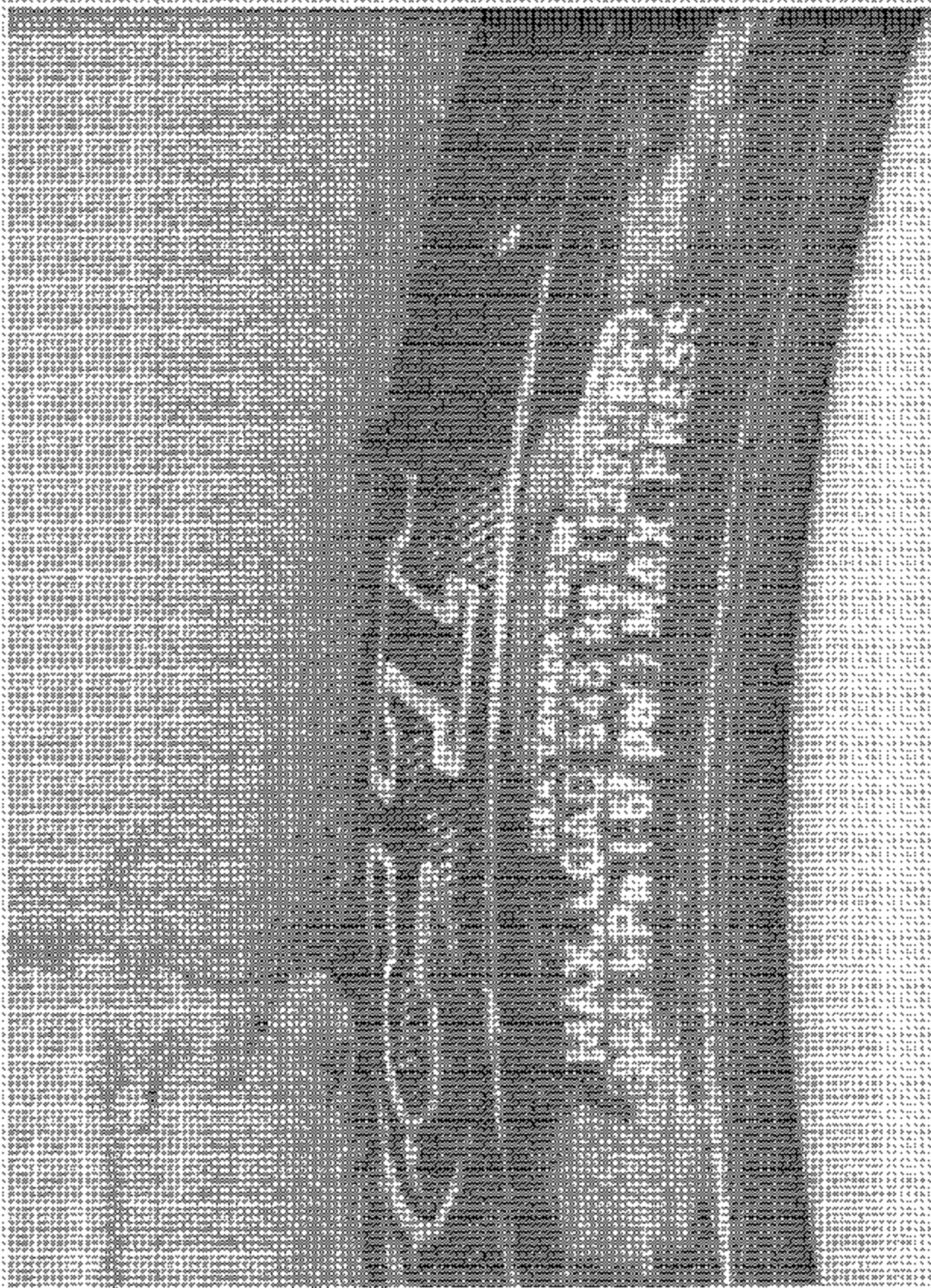
FIGURE 3
THE SHOWING MODEL

2013 BAWU/AAI COURSE
NHTSA NO. C8555
E-155 NO. 111 INDICANT



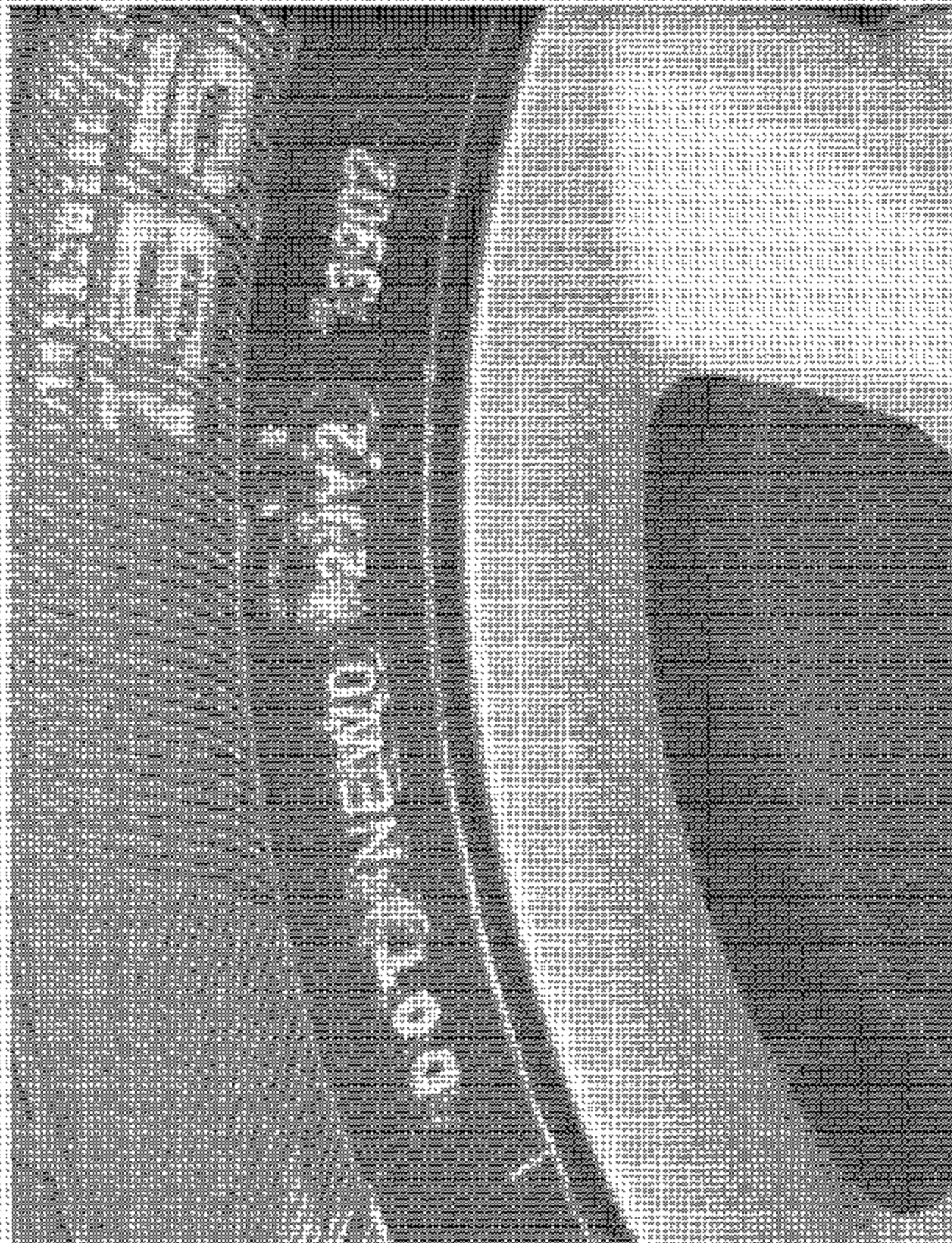
2003 BUNYAN BUILDER
SHTS NO. 050506
PLANS NO. 110 (INDICATED)

FIGURE 37
TIRE SURVIVAL SIZE



2003 BMW MINI COOPER
 NHTSA NO. C34505
 FMVSS NO. 110 (INDICANT)

FIGURE 3
 TIRE SHOWING MAX LOAD RATING AND MAX
 INFLATION PRESSURE



5003 BARTON DOOPER
NITSA NO 250094
EMISSAO 11/08/2011

FIGURE 3
TYPE SHOWING SERIAL NUMBER



2005 BMW MINI COOPER
NHTSA ID: C30506
FMVSS NO. 110 INDEPENDANT

FIGURE 5.8
VEHICLES MAINTAINED TO SIMULATE NORMAL
LOAD CONDITION

APPENDIX

Table 1 – Occupant Loading and Distribution for Vehicle Normal Load for Various Designated Seating Capacities

Designated Seating Capacities, numbers of Occupants	Vehicle normal load, number of occupants	Occupant distribution in a normally loaded vehicle
2 through 4	2	2 in front
5 through 10	3	2 in front, 1 in second seat
11 through 15	5	2 in front, 1 in second seat, 1 in third seat, 1 in fourth seat
16 through 22	7	2 in front, 2 in second seat, 2 in third seat, 1 in fourth seat

NOTE: For the indicant test each seat was adjusted to its full down and mid forward to aft position with the seat back adjusted to a 25° reclined angle. Each designated seat position was ballasted with 54 KG (120 LBS) in the seat and 14 KG (30 LBS) on the floor directly in front of the respective seat position.